

REMARKS

Claims 1-19 are currently pending in the subject application, and are presently under consideration. Claims 1-19 stand rejected. Claims 1, 3, 5, 6, 7 and 14 have been amended and new claim 20 has been added. Favorable reconsideration of the application is requested in view of the amendments and comments herein.

I. Rejection of Claims 1-11 and 13 Under 35 U.S.C. §103(a)

Claims 1-11 and 13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. 6,175,719 to Sarraf, et al. ("Sarraf") in view of U.S. 5,963,862 to Adiwoso, et al. ("Adiwoso"). Withdrawal of this rejection is respectfully requested for at least the following reasons.

Claim 1 has been amended to recite an intermediate range of frequencies in the C-band. Sarraf does not teach or suggest an intermediate range of frequencies in the C-band as recited in amended claim 1. Sarraf teaches only that the PTP transmissions are converted to an IF signal, but Sarraf is silent on any specific frequency range or band for the IF signal. Sarraf discloses that a reconfigurable input filter-switch matrix (IFSM) is connected to a plurality of receiver subsystems and the digital signal processor-router (DSPR) and is controllable via a network control center (NCC) input and a command decoder to select any predefined band of each IF frequency spectrum, and connect the selected bands to appropriate output ports in a non-blocking fashion (See Sarraf Col. 3, Lines 55-60). Since Sarraf fails to teach or suggest intermediate signals in the C-band, as recited in claim 1, the satellite in Sarraf is unable to avail itself to the benefits associated with operating in such band, including the selectively and flexibly switching and filtering of the intermediate signals which are in the C-band, as also recited in claim 1. Moreover, employing the C-band for the intermediate frequency range as recited in claim 1 meets a long felt, but unmet need in the art (see e.g. Paragraphs [0024] and [0037] - [0038] of the Specification). The Office Action explicitly admits that Sarraf is silent on an IF section coupled between an input section and an output section (See Office Action at page 3, lines 3-4).

The Office Action relies on the teachings of Adiwoso for the shortcomings of Sarraf. However, in contrast to the contention of the Office Action, the addition of Adiwoso does not

cure the deficiencies of Sarraf. Adiwoso does not teach or suggest employing an IF section in a multi-beam satellite as recited in claim 1. The conclusion of obviousness based on the combination of Sarraf and Adiwoso thus appears to be based on improper hindsight in which the present application provides the missing teaching and/or motivation to modify the combination of Sarraf and Adiwoso in the manner suggested in the Office Action, as Adiwoso, when considered in its entirety, fails to teach or suggest an IF section of a multi-beam satellite.

Assuming *arguendo* that the combination of Sarraf and Adiwoso does teach an IF section of a multi-beam satellite, the purported combination still fails to teach an IF section coupled between an input section and an output section of a multi-beam satellite or an intermediate frequency range in the C-band as recited in claim 1. Adiwoso teaches that a satellite control facility (SCF) is coupled with a network control center (NCC) (See Adiwoso, Col. 4, Lines 44-45). Adiwoso further discloses a user terminal (shown as a small satellite dish) coupled to a variety of multi-media devices such as a telephone, a computer, an interactive television and a data communications device (See Adiwoso, Col. 5, Lines 33-38). Both the NCC and the multi-media devices taught by Adiwoso are coupled to satellite dishes that communicate with a satellite (See Adiwoso, Fig. 1). Neither the NCC nor the multi-media devices disclosed in Adiwoso are coupled to or form part of a satellite. Claim 1 recites that the IF section is coupled between the input and output sections of a multi-beam satellite. Consequently, there is no teaching suggestion or motivation to use the NCC and multi-media devices disclosed in Adiwoso in conjunction with the system taught by Sarraf to provide the IF section between input and output sections of a multi-beam satellite, as recited in claim 1.

Further, claim 1 has been amended recite that the intermediate range of frequencies are in the C-band. Adiwoso discloses the use of satellite telecommunication systems utilizing Ka-band and Ku-band frequencies (See Adiwoso Col. 6, Lines 58-67). Adiwoso further discloses the use of C-band for uplink (user-to-satellite) and downlink (satellite to user) connections. However, Adiwoso fails to teach or suggest the use of the C-band for IF signals within a multi-beam satellite, as recited in claim 3. In fact, Adiwoso is silent on the use of IF signals at any frequency within any terrestrial or satellite structure. Instead, Adiwoso discloses that the transmitted uplink and downlink frequencies are provided in the C-band. Accordingly, Adiwoso fails to provide a teaching or motivation from which one of ordinary skill in the art would seek to implement and

IF section coupled between the input section and the output section and where the IF section down-converts received uplink spot beams to IF signals in the C-band. Accordingly, neither Sarraf nor Adiwoso, taken individually or in combination, make claim 1 obvious.

Claims 2-11 and 13 depend directly or indirectly from claim 1 and are not obvious for at least the same reasons as claim 1 and for the specific elements recited therein. Therefore, claims 2-11 and 13 are not made obvious by Sarraf in view of Adiwoso.

Claim 4 recites that an IF section up-converts a plurality of intermediate signals in a range of intermediate frequencies with selectable translation amounts. The Office Action refers to Sarraf at Col. 3, lines 45-60 in support of its rejection of claim 4. However, Sarraf does not teach or suggest upconversion of the intermediate signals (in the C-band) performed by the IF section with selectable translation, as recited in claim 4. Instead, Sarraf discloses that the IFSM (132) performs down conversion of the received signals into to a predefined band of the IF frequency spectrum. In fact, as shown in Fig. 2 of Sarraf, the upconverters (114) appear have a fixed translation amount (See also Sarraf Col. 3, Lines 20-38). Accordingly, Sarraf does not teach or suggest claim 4. Therefore, neither Sarraf, alone or in combination with any other cited reference, does not teach or suggest up-converting intermediate frequencies with selectable translation amounts, as suggested in the Office Action. Reconsideration and allowance of claim 4 is respectfully requested.

Claim 6, which depends from claim 4, has been amended to correct an inadvertent typographical error (also corrected in claims 5 and 7). Claim 6 recites allocating combined returned signals from among one of a plurality of first spot beams selected to contain a gateway switch by switching a plurality of spot beams. In contrast, Adiwoso discloses a satellite that employs single or multi-beam access links that connect gateway stations. The “gateway stations” disclosed in Adiwoso do not correspond to the gateway switch recited in claim 6. The gateway stations (30a) disclosed in Adiwoso include terrestrial dish antennas (33 and 35) as illustrated in Fig. 1 of Adiwoso. Thus, the gateway stations are not part of a multi-beam satellite that allocates combined return signals from among a plurality of first spot beams as recited in claim 6. Adiwoso is further silent allocating combined returned signal as recited in claim 6.

Since neither Sarraf nor Adiwoso, taken individually or in combination, make claim 6 obvious, reconsideration and allowance of this claim are respectfully requested.

II. Rejection of Claims 12 and 19 Under 35 U.S.C. §103(a)

Claims 12 and 19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. 6,175,719 to Sarraf, et al. ("Sarraf") in view of U.S. 6,963,862 to Adiwoso, et al. ("Adiwoso") and further in view of U.S. 5,771,449 to Blasing, et al. ("Blasing"). Withdrawal of this rejection is respectfully requested for at least the following reasons.

Claims 12 and 19 depend directly or indirectly from claims 1 and 14, respectively, and are not obvious for at least the same reasons as claims 1 and 14. Additionally, nothing in Blasing suggests employing a local oscillator in a multi-beam satellite as recited in claim 12. The conclusion of obviousness based on the combination of Sarraf, Adiwoso and Blasing thus appears to be based on improper hindsight in which the present application provides the missing teaching and/or motivation to modify the combination of Sarraf and Adiwoso in the manner suggested in the Office Action, as Blasing fails to teach or suggest a local oscillator in a multi-beam satellite as recited in claim 12.

Assuming *arguendo* that the combination of Sarraf, Adiwoso, and Blasing does teach a local oscillator in multi-beam satellite, the purported combination still fails to teach a local oscillator employed to select translation amounts of intermediate signals as recited in claim 12. Blasing discloses a transceiver mounted on a rooftop that includes an antenna, a local oscillator and a modem, a fiber interface, control circuitry and is connected to a DC power supply and a fiber interface inside a building (See Blasing, Col. 20, Lines 24-34). The local oscillator disclosed in Blasing does not disclose a local oscillator in a multi-beam satellite as recited in claim 12. In fact, the local oscillator disclosed in Blasing is used to implement an encryption method (See Blasing, Col. 26, Lines 3-5). Since the combination of Sarraf, Adiwoso and Blasing fails to teach or suggest using different local oscillator frequencies to obtain selectable translation amounts for upconversion of IF signals (in the C-band) to the downlink spot beams the second range of frequencies, claim 12 is not made obvious by Sarraf in view of Adiwoso in

further view of Blasing. Claim 19 recites a method similar to claim 12 and should be allowed for substantially the same reasons as claim 12.

III. Rejection of Claims 14-18 Under 35 U.S.C. §103(a)

Claims 14-18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. 6,125,261 to Anselmo, et al. (“Anselmo”) in view of U.S. 6,574,794 to Sarraf, et al. (“Sarraf 2”). Withdrawal of this rejection is respectfully requested for at least the following reasons.

The method of claim 14 has been amended to recite down-converting a plurality of uplink spot beams to a plurality of intermediate frequencies, wherein said intermediate frequencies are in the C-band. Anselmo discloses that 3.0 GHz bandwidth beams are received, down converted, routed through a circuit switch, upconverted, and amplified (See Anselmo Col. 6, Lines 10-15). Anselmo does not teach or suggest down-converting a plurality of spot beams to a plurality of intermediate frequencies, wherein said intermediate frequencies are in the C-band, as recited in amended claim 14. In fact, Anselmo is silent on any specific frequency to which the 3.0 GHz bandwidth beams are converted. Accordingly, Anselmo does not teach or suggest claim 14.

The addition of Sarraf 2 does not cure the deficiencies of Anselmo. Sarraf 2 discloses satellite payload architecture that includes a receive spot-beam antenna and RF-electronics subsystem. Sarraf 2 also discloses an uplink-frequency-subband filter-switch-matrix (UFSM) with input ports that selects active subbands from received intermediate frequency (IF) signals and passes the IF signals to a digital regenerative signal processor (DRSP) (See Sarraf 2, Col. 6, Lines 42-65). Sarraf 2 does not teach or suggest down-converting a plurality of uplink spot beams to a plurality of intermediate frequencies, wherein said intermediate frequencies are in the C-band as recited in claim 14. Sarraf 2 teaches only that the antenna and RF-electronics subsystem converts the received uplink signals to an IF signal. Sarraf 2 is silent employing any particular band for the IF signal. Accordingly, Anselmo in view of Sarraf 2, taken individually or in combination, do not make claim 14 obvious.

Claims 15-18 depend directly or indirectly from claim 14 and are not obvious for at least the same reasons as claim 14 and for the specific elements recited therein. Therefore, claims 14-18 are not made obvious by Anselmo in view of Sarraf 2.

IV. New Claim 20 is patentable

New claim 20 is similar to original claim 4 as it substantially incorporates the subject matter of original claims 1 and 4 in independent form, including a recitation of how the IF section implements selectable translation for upconversion of intermediate signals. Support for this amendment can be found, for example, at paragraph [0039] of the instant application. Allowance of claim 20 is respectfully requested.

V. CONCLUSION

In view of the foregoing remarks, Applicant respectfully submits that the present application is in condition for allowance. Applicant respectfully requests reconsideration of this application and that the application be passed to issue.

If the Examiner has any questions or if the Applicant or its representative can be of any assistance in connection with the prosecution of this application, the Examiner is invited and encouraged to contract the undersigned at the number below.

No fees should be due for this amendment since the filing fees covered cost for up to three independent claims and 20 total claims, which are now present by this amendment. Please charge any deficiency or credit any overpayment in the fees for this amendment, including any extensions of time, to our Deposit Account No. 20-0090.

Respectfully submitted,



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